

ORIGINAL



0000173780

Memorandum

From the office of
Chairman Doug Little
Arizona Corporation Commission
1200 W. WASHINGTON
PHOENIX, ARIZONA
(602) 542-0745

TO: Docket Control

DATE: October 4, 2016

FROM: Chairman Doug Little's Office

SUBJECT: APS E-01345A-16-0036
APS E-01345A-16-0123

RECEIVED
AZ CORP COMMISSION
DOCKET CONTROL
2016 OCT -11 PM 3:23

Chairman Little's office received the attached documents that pertain to the above docket numbers. The documents can be viewed in Docket, or on the Commission website via the eDocket link.

Arizona Corporation Commission
DOCKETED
OCT 04 2016

DOCKETED BY *Ma*



On this 4th day of October, 2016, the foregoing document was filed with Docket Control as a Correspondence from Chairman Doug Little, and copies of the foregoing were mailed on behalf of Chairman Doug Little to the following who have not consented to email service. On this date or as soon as possible thereafter, the Commission's eDocket program will automatically email a link to the foregoing to the following who have consented to email service.

Kurt Boehm
BOEHM, KURTZ & LOWRY
36 E. Seventh St. Suite 1510
Cincinnati Ohio 45202

Nicholas J. Enoch
LUBIN & ENOCH, PC
349 N. Fourth Ave.
Phoenix Arizona 85003

Richard Gayer
526 W. Wilshire Dr.
Phoenix Arizona 85003
rgayer@cox.net
Consented to Service by Email

Albert H. Acken
One N. Central Ave Ste 1200
Phoenix Arizona 85004
aacken@rcalaw.com
ssweeney@rcalaw.com
slofland@rcalaw.com
jjw@krsaline.com
Consented to Service by Email

Timothy M. Hogan
ARIZONA CENTER FOR LAW IN THE
PUBLIC
INTEREST
202 E. McDowell Rd. - 153
Phoenix Arizona 85004
thogan@aclpi.org
ken.wilson@westernresources.org
schlegelj@aol.com
ezuckerman@swenergy.org
bbaatz@aceee.org
briana@votesolar.org
Consented to Service by Email

Cynthia Zwick
ARIZONA COMMUNITY ACTION
ASSOCIATION
2700 N. Third St. - 3040
Phoenix Arizona 85004

Jay I. Moyes
MOYES SELLERS & HENDRICKS, LTD
1850 N. Central Ave. - 1100
Phoenix Arizona 85004
JasonMoyes@law-msh.com
jimoyes@law-msh.com
jim@harcuvar.com
Consented to Service by Email

Thomas A Loquvam
PINNACLE WEST CAPITOL
CORPORATION
400 N. 5Th St, MS 8695
Phoenix, Arizona 85004

Michael Patten
SNELL & WILMER, LLP
One Arizona Center
400 East Van Buren Street
Phoenix Arizona 85004
mpatten@swlaw.com
jhoward@swlaw.com
docket@swlaw.com
BCarroll@tep.com
Consented to Service by Email

Janice Alward
ARIZONA CORPORATION COMMISSION
1200 W. Washington
Phoenix Arizona 85007
JAlward@azcc.gov
TBroderick@azcc.gov
chanis@azcc.gov

wvancleve@azcc.gov
eabinah@azcc.gov
tford@azcc.gov
evanepps@azcc.gov
cfitzsimmons@azcc.gov
kchristine@azcc.gov
mscott@azcc.gov

Consented to Service by Email

Daniel Pozefsky
RUCO
1110 West Washington, Suite 220
Phoenix Arizona 85007

Greg Patterson
MUNGER CHADWICK
916 W. Adams Suite 3
Phoenix Arizona 85007

Anthony Wanger
IO DATA CENTERS, LLC
615 N. 48th St
Phoenix Arizona 85008

Giancarlo Estrada
KAMPER ESTRADA, LLP
3030 N. 3rd Street, Suite 770
Phoenix Arizona 85012

Meghan H. Grabel
OSBORN MALADON, PA
2929 N. Central Avenue Suite 2100
Phoenix Arizona 85012
mgrabel@omlaw.com
gyaquinto@arizonaic.org
Consented to Service by Email

Scott S. Wakefield
HIENTON & CURRY, PLLC
5045 N 12th Street, Suite 110
Phoenix Arizona 85014-3302
swakefield@hclawgroup.com
mlougee@hclawgroup.com
Stephen.chriss@wal-mart.com
Greg.tillman@walmart.com
chris.hendrix@wal-mart.com
Consented to Service by Email

Patrick J. Black
FENNEMORE CRAIG, P.C.
2394 E. Camelback Rd, Ste 600
Phoenix Arizona 85016
wcrocket@fclaw.com
pblack@fclaw.com

khiggins@energystrat.com
Consented to Service by Email

John William Moore, Jr.
1321 North 16th Street
Phoenix Arizona 85020

Tom Harris
ARIZONA SOLAR ENERGY INDUSTRIES
ASSOCIATION
2122 W. Lone Cactus Dr. Suite 2
Phoenix Arizona 85027
Tom.Harris@AriSEIA.org
Consented to Service by Email

Craig A. Marks
CRAIG A. MARKS, PLC
10645 N. Tatum Blvd.
Suite 200-676
Phoenix Arizona 85028
Craig.Marks@azbar.org
Pat.Quinn47474@gmail.com
Consented to Service by Email


Court S. Rich
ROSE LAW GROUP, PC
7144 E. Stetson Drive, Suite 300
Scottsdale Arizona 85251

Greg Eisert
SUN CITY HOME OWNERS ASSOCIATION
10401 W. Coggins Drive
Sun City Arizona 85351
gregeisert@gmail.com
steven.puck@cox.net
Consented to Service by Email

Albert E. Gervenack
SUN CITY WEST PROPERTY OWNERS &
RESIDENTS
ASSOCIAT
13815 Camino Del Sol
Sun City West Arizona 85375
al.gervenack@porascw.org
rob.robbins@porascw.org
Consented to Service by Email
Patricia C. Ferre
P.O. Box 433
Payson Arizona 85547
Lawrence V. Robertson, Jr.
PO Box 1448
Tubac Arizona 85646
tubaclawyer@aol.com
Consented to Service by Email

Charles Wesselhoft
Pima County Attorney's Office
32 North Stone Avenue, Suite 2100
Tucson Arizona 85701
Charles.Wesselhoft@pcao.pima.gov
Consented to Service by Email

Warren Woodward
200 Sierra Road
Sedona Arizona 86336
w6345789@yahoo.com
Consented to Service by Email

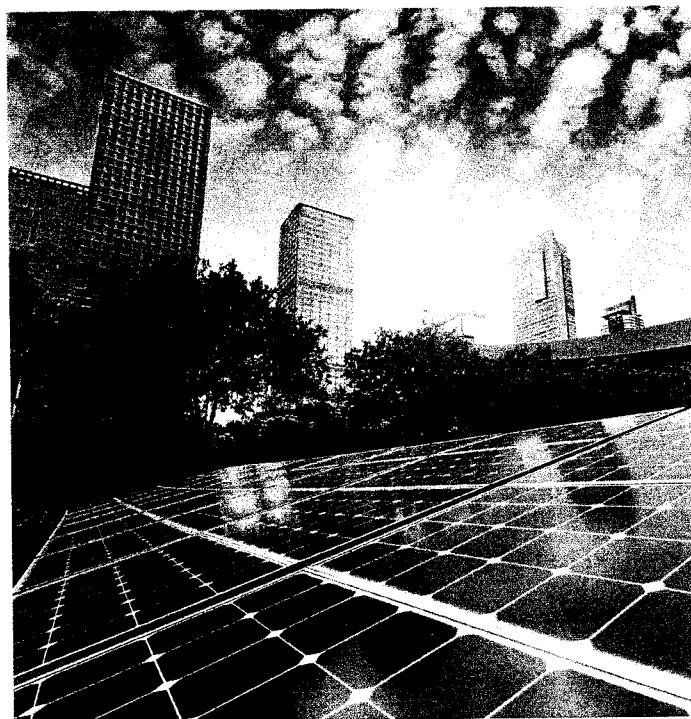
By: 
Andrea Gaston
Executive Aide to Chairman Doug Little

INCENTIVES FOR ROOFTOP RESIDENTIAL SOLAR PV

Pro-Solar. Pro-Grid. Pro-Consumer.

Solar energy technology has the power to change the face of modern electricity generation dramatically. From rooftop to community to large-scale projects, consumers across the country are realizing the awesome potential that solar brings to them in the form of clean, affordable, and reliable energy. To ensure that solar energy technology thrives, and that consumers are able to access it, federal, state, county, and even local governments have created incentives to encourage solar technology.

Accordingly, Consumer Energy Alliance (CEA) commissioned Borlick Associates to provide a report that describes and quantifies the amount of incentives consumers have access to in various states across the country. From California to Massachusetts, and from Maine to Arizona, this comprehensive view of solar incentives should help lawmakers, policymakers, regulators, utilities, and consumers at the federal, state, and local level make informed policy, legal, and investment decisions based on the most current information available to ensure the proliferation of solar technology, the continued efficiency of a robust electric grid, and increased access to clean, affordable, and reliable energy sources for all American consumers.



EXECUTIVE SUMMARY

To stimulate renewable energy development, governments at the local, state and federal level have provided a myriad of incentives for residential electricity customers who install solar panels on their roofs, some of which overlap. The combined effect of these incentives is quite significant – particularly in light of the dramatic decline in the cost of solar panels that has recently occurred.

This report aims to inform policymakers by quantifying the total incentives as a percentage of the installed cost of a typical residential solar facility located in each of 15 states, including: Arizona, California, Connecticut, Florida, Georgia, Illinois, Louisiana, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, Nevada, and North Carolina. These states were selected to capture diversity in location, state-level incentive policies, retail tariff designs, and wholesale electricity prices. Accordingly, this report focuses on the following:

INCENTIVES FOR ROOFTOP RESIDENTIAL SOLAR PV

Nature of the Incentives

While a number of financial incentives exist for rooftop residential solar PV users, this report explores the four most prominent and significant types of incentives:

- Incentives provided to residential customers who own solar PV facilities, through tax credits and monetary payments from federal and state governmental entities and electric utilities,
- Incentives provided through state “net energy metering” (NEM) policies,
- Incentives provided to third party owners (TPOs) of residential rooftop solar PV facilities that either lease them or sell the energy they produce to their residential customers through long-term contracts,
- Incentives provided through Renewable Energy Certificates (RECs) that can be sold.

Direct Incentives

This is all residential customers that own solar PV receive the Residential Energy Efficiency Property Credit (REEPC), which is a federal tax credit equal to 30 percent of the solar PV facility’s installed cost. In addition to the REEPC, many customers receive one or more of the following incentives:

- State income tax credits and/or deductions,
- State and/or local sales and/or property tax exemptions,
- State renewable energy payments,
- State Public Utility Commission (PUC)-approved incentives provided by the utilities they regulate.

In some states, owners of residential solar PV also receive incentives from their local governmental entities. To simplify the analyses, this report excludes these incentives.

Net Energy Metering (NEM) Incentives

In 44 states and the District of Columbia, residential customers with solar PV can participate in NEM programs offered by their respective electric utilities. These programs bill the customer for the net amount of electricity consumed, i.e., what the customer consumes less the amount the customer produces onsite. Any excess energy produced flows back to the utility and the customer receives a bill credit that is applied to future bills. In effect, the utility purchases all of the customer’s solar energy at the energy prices in the customer’s retail tariff, which almost always exceed the utility’s avoided costs. This report defines the NEM incentive as the present value of the customer’s bill savings derived from the NEM program, less the present value of the costs the utility avoids due to the customer’s onsite generation, over the 25-year expected economic life of the solar facility.



INCENTIVES FOR ROOFTOP RESIDENTIAL SOLAR PV

Third Party Ownership Incentives

Recently, a new business model has emerged - the third party ownership model - where a business entity owns the solar PV system installed on a homeowners' rooftop and either leases the system to the homeowner or sells the energy it produces to the homeowner through a long-term contract. This arrangement creates additional incentives because the third party owner (TPO) depreciates the solar facility as a business asset over just 5 years. In addition, the TPO bases the depreciation deductions and the federal ITC on the facility's fair market value (FMV), which is higher than the installed cost.

Renewable Energy Certificates

A renewable energy certificate (REC) is a property right created for the owner of a renewable resource when it produces one MWh of energy that is certified and reported to one of nine regional tracking systems. RECs created by solar facilities are a special subset often referred to as "Solar Renewable Energy Certificates (SRECs)." RECs have monetary value primarily because the electricity suppliers serving retail customers in 29 states and the District of Columbia must acquire them in order to comply with the renewable portfolio standards (RPS) adopted by these political jurisdictions. Owners of rooftop solar facilities can sell their RECs into one or more regional markets at the prevailing market prices. In addition, in some states, the owners can sell their RECs directly to their host utilities through PUC-mandated programs that pay above-market prices.

Estimates of Incentive Values

Figure 1 illustrates the installed cost and incentives available for a typical nominal 4 KW-dc residential solar PV facility. The incentives shown are simple averages of the 15 state-specific results obtained for residential customers served under their respective utilities' standard tariffs. For comparison, it also presents the installed cost and incentives available for a third party-owned 4 KW-dc residential solar PV facility and by an equivalent amount of capacity from a typical, large-scale fixed-tilt solar PV facility.

As Figure 1 shows, the installed cost of an equivalent amount of utility-scale solar PV capacity (also reported by SEIA for Q1-2015) is about half that of the residential solar PV facility. It also reveals that large-scale solar PV facilities receive incentives (all from the federal government) equal to only about 58 percent of installed cost. Because a solar PV facility's initial investment essentially determines the resource cost of the electricity it produces, large-scale solar PV produces electricity at a much lower resource cost than residential solar PV.

Figures 2 and 2A present the state-by-state incentive estimates for customer-owned residential solar PV in each of the 15 selected states. The incentives to customer-owned residential solar PV in 8 of the 15 states cover more than the customer's cost of installing the facilities. An additional 7 states provide incentives that cover more than three-quarters of the installed cost of the solar PV facilities.



INCENTIVES FOR ROOFTOP RESIDENTIAL SOLAR PV

Conclusions

Based on the various incentives and certificates at the federal, state, and local levels offered to solar PV rooftop users, this report will demonstrate the following conclusions to provide a foundation and context for policymakers to make well-reasoned and informed decisions regarding solar policy within their jurisdiction.

Existing Incentives For Residential Solar PV Are Significant

The combined effect of the incentives in many states collectively exceeds the total cost of installing a solar PV facility – particularly for third party-owned facilities.

Third Party-Owned Solar PV Facilities Receive Significant Incentives

When a customer leases a solar PV facility or purchases its energy output through a long-term contract, the TPO receives the federal ITC and 5-year accelerated depreciation, significantly enhanced by basing them on the fair market value of the facility, rather than its installed cost.

Existing Incentives May Change the Economics of Future Investments in Solar

The non-incentivized cost of producing a kWh of energy with residential solar PV is much higher than the non-incentivized cost of producing a kWh of energy with a large-scale solar PV; consequently, incentivizing residential solar PV may not be the economically efficient way to increase solar penetration.

The NEM Incentive Shifts Costs onto Less Affluent Customers

Net metering programs, which pay residential PV solar customers high rates for their excess electricity production, shift fixed utility infrastructure costs onto non-solar customers, who a number of reports show are typically less affluent than customers with solar PV.

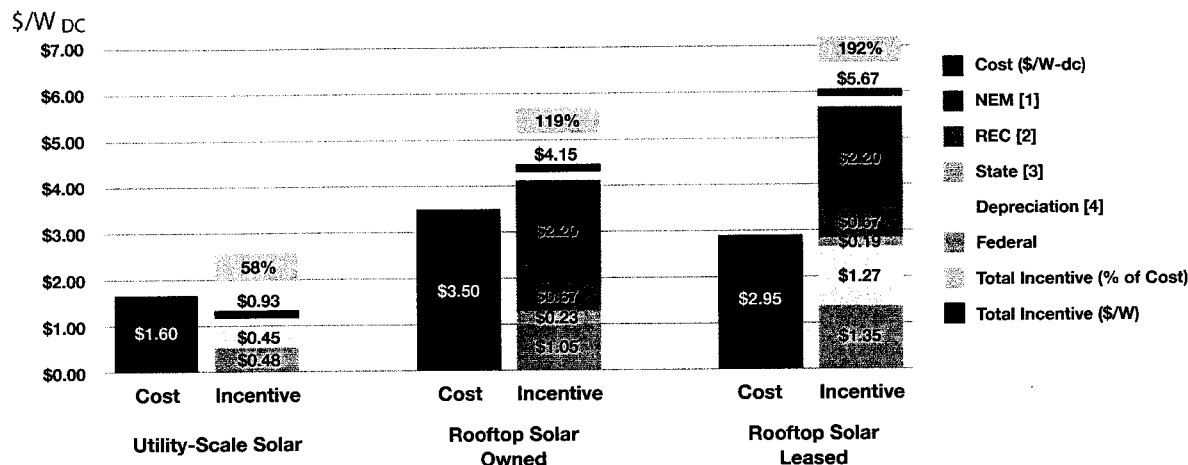
Incentives For Residential Solar PV Vary Widely Among The States

The total incentives for customer-owned residential solar PV facilities vary significantly among the states. Four factors create these disparities: (1) different state direct and REC incentives for residential solar energy, (2) different residential retail tariff designs, (3) different avoided utility costs and, (4) (for third party-owned facilities) different contract pricing strategies. Still, on a dollar per-kW basis, even the smallest package of total incentives far exceeds the incentives provided to large-scale solar PV projects.



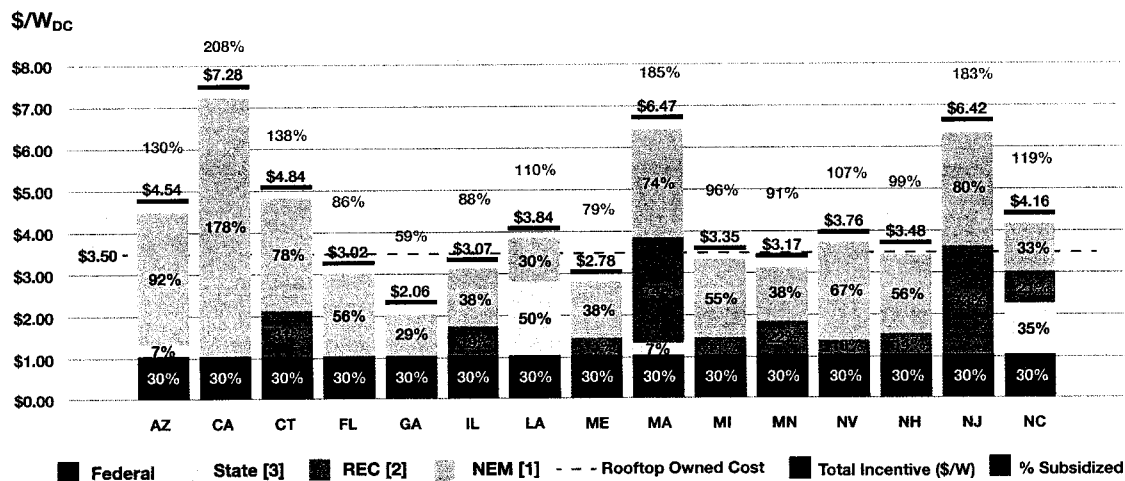
INCENTIVES FOR ROOFTOP RESIDENTIAL SOLAR PV

Figure 1. Incentives Available for a 3.9 kW-dc Residential Solar PV Facility and an Equivalent Amount of Utility-scale Solar PV Capacity (\$/Wdc)



1. NEM incentive is the difference between the present values of the customer's bill savings and the utility's avoided costs over the facility's life. For Rooftop Leased, the incentive flows to the homeowner and is largely passed through to the Third-Party Owner as a lease or PPA payment.
2. Renewable Energy Certificates / Credits are incentives available through applicable programs.
3. Incentives mandated by state legislatures are upfront and/or performance-based compensation, often through the state tax code.
4. Depreciation is based on renewable-specific 5-year MACRS.

Figure 2. Incentives Available for Customer-Owned Residential Solar PV in Selected States, as a Percentage of Installed Cost (3.9 kW)



1. NEM incentive is the difference between the present values of the customer's bill savings and the utility's avoided costs over the facility's life. For the typical lease, the incentive flows to the homeowner and is largely passed through to the Third-Party Owner as a lease or PPA payment.
2. Renewable Energy Certificates are incentives available through applicable programs.
3. Incentives mandated by state legislatures are upfront and/or performance-based compensation, often through the state tax code.

INCENTIVES FOR ROOFTOP RESIDENTIAL SOLAR PV

Figure 2A. Incentives Available for Customer-Owned Residential Solar PV in Selected States, as a Percentage of Installed Cost (6 kW)

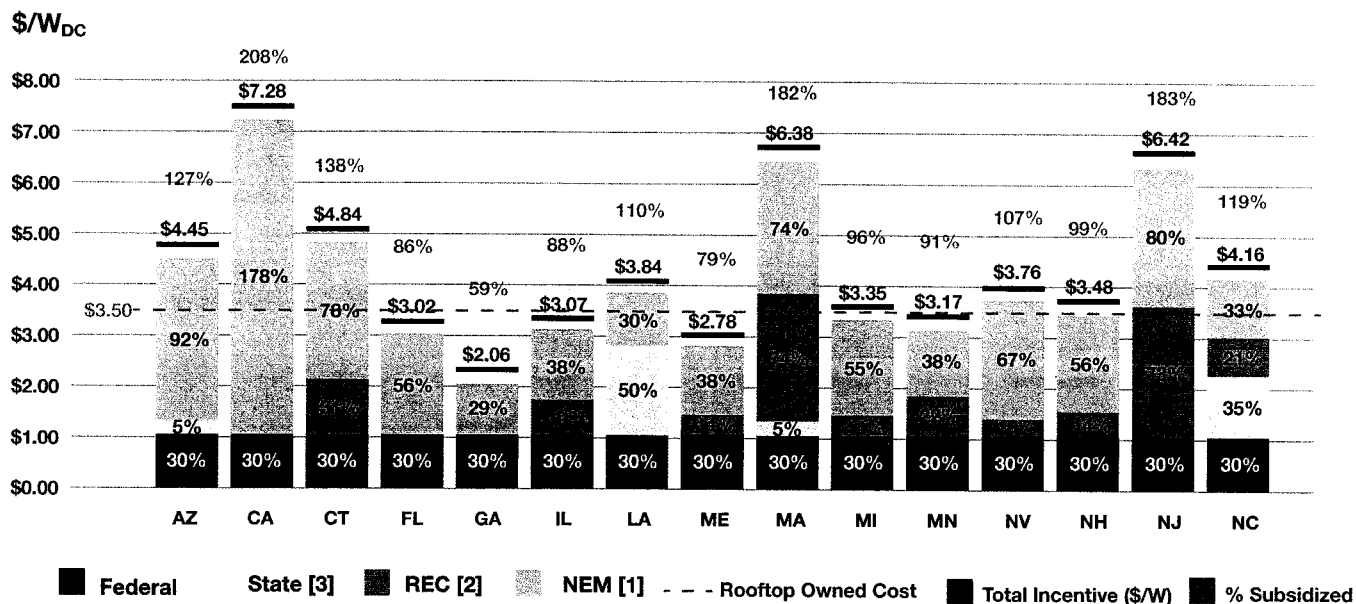
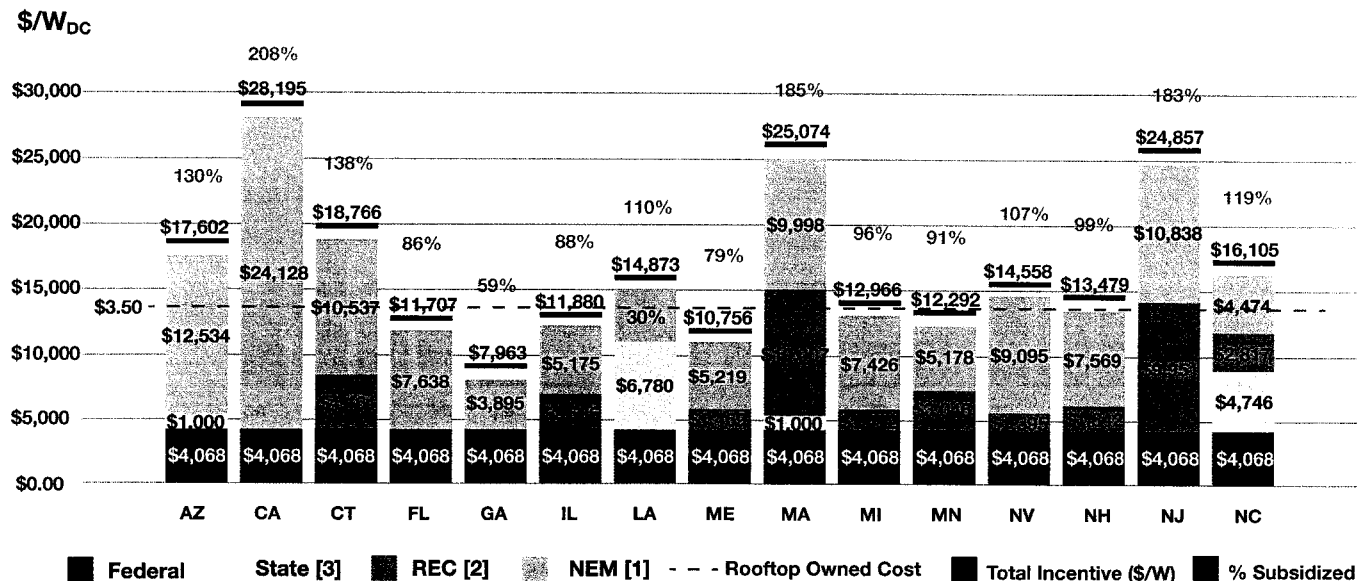
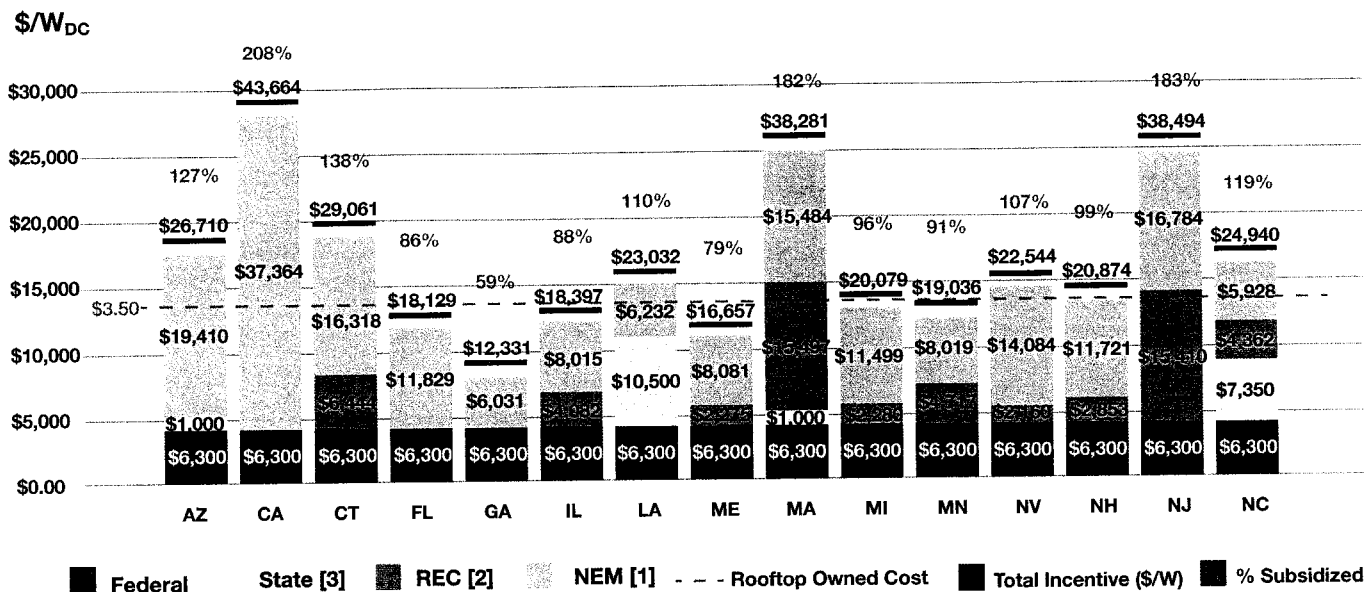


Figure 3. Total Incentive (\$) for Typical Rooftop Owned System (3.9kW)



INCENTIVES FOR ROOFTOP RESIDENTIAL SOLAR PV

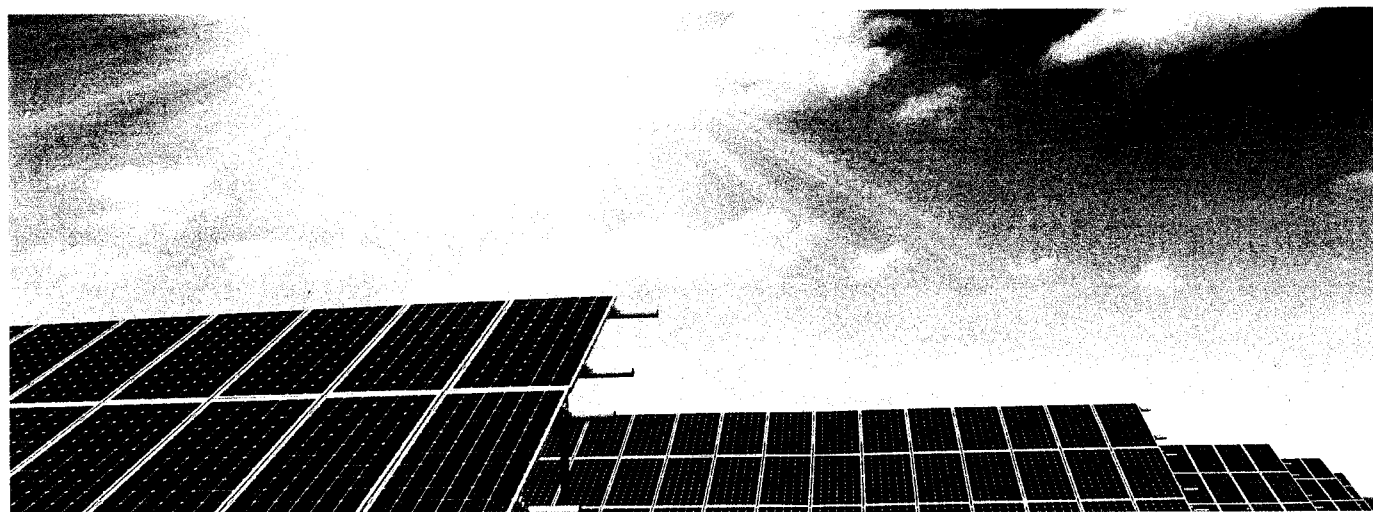
Figure 3A. Total Incentive (\$) for Typical Rooftop Owned System (6kW)



ARIZONA'S SOLAR INCENTIVES

Incentives for Typical Installations across the Nation

	Incentive (\$/W)	=	Installed Cost (\$/W)	*	Subsidized Percentage
Utility-scale Solar	\$0.93	=	\$1.60	*	58%
Owned Rooftop Solar (15 state average)	\$3.94	=	\$3.50	*	113%
Leased Rooftop Solar (15 state average)	\$5.46	=	\$2.95	*	185%



Conclusion

Solar electricity generation can improve our environment and reduce everyone's electricity bills, but only with the right set of policies. In Arizona, these policies must reflect the potential for solar to play an increasing role in the state's electricity portfolio and the need to maintain a robust electric grid for all utility consumers.

Understanding these conclusions and considerations – and making policy, law and investment decisions based upon them – will lay the foundation for a solar energy future in Arizona that is vibrant, clean, reliable, and provides affordable energy to all consumers. And that is certainly **pro-solar, pro-grid, and pro-consumer**.



CONSUMER **ENERGY** ALLIANCE
THE VOICE OF THE ENERGY CONSUMER

ARIZONA'S SOLAR INCENTIVES

- Arizona has adopted an RPS of 15 percent to be attained by 2025, which includes a carve-out (i.e., 30 percent of 15 percent) for distributed renewable generation.
- A single 6,000-watt rooftop solar system in Arizona receives \$26,710 in taxpayer and net metering incentives, or about \$4.45 in incentives per watt, representing 127% of the actual cost of the system.
- A single 3,900-watt rooftop solar system in Arizona receives \$17,602 in taxpayer and net-metering incentives, or about \$4.54 in incentives per watt, representing 130% of the actual cost of the system.

Incentives for Typical Rooftop Solar in Arizona (6.0kW)

	Incentive (\$) (Typical 6.0kW system)	Incentive (\$/W)	Percentage of Cost
Federal	\$6,300	\$1.05	30%
State	\$1,000	\$0.17	5%
NEM	\$19,410	\$3.24	92%
Total	\$26,710	\$4.45	127%

Incentives for Typical Rooftop Solar in Arizona (3.9kW)

	Incentive (\$) (Typical 3.9kW system)	Incentive (\$/W)	Percentage of Cost
Federal	\$4,068	\$1.04	30%
State	\$1,000	\$0.26	7%
NEM	\$12,534	\$3.21	92%
Total	\$17,602	\$4.54	130%



ARIZONA'S SOLAR INCENTIVES

Pro-Solar. Pro-Grid. Pro-Consumer.

Solar energy technology has the power to change the face of modern electricity generation. From rooftop to community to utility-scale projects, consumers across the country are realizing the awesome potential that solar brings to them in the form of clean, affordable, and reliable energy. To ensure that solar energy technology thrives, and that consumers are able to access it, federal, state, county, and even local governments have created incentives to encourage solar technology.

Accordingly, Consumer Energy Alliance (CEA) commissioned Borlick Associates to provide a report that describes and quantifies the amount of incentives that consumers have access to in various states across the country. This comprehensive view of solar incentives should help lawmakers, policymakers, regulators, utilities, and consumers at the federal, state, and local level make informed policy, legal, and investment decisions based on the most current information available to ensure the proliferation of solar technology, the continued efficiency of a robust electric grid, and increased access to clean, affordable, and reliable energy sources for all American consumers.



Solar Incentives in Arizona

Among the report's key findings:

- Existing Incentives for Residential Solar PV are Significant
- Third Party-Owned Solar PV Facilities Receive Significant Incentives
- Existing Incentives May Change the Economics of Future Investments in Solar
- The NEM Incentive Shifts Costs onto Less Affluent Customers
- Incentives for Residential Solar PV Vary Widely Among the States



CONSUMER **ENERGY** ALLIANCE
THE VOICE OF THE ENERGY CONSUMER